

CENTRAL PENN BUSINESS JOURNAL

January 12, 2007 · Vol. 23 · No. 2 · \$2

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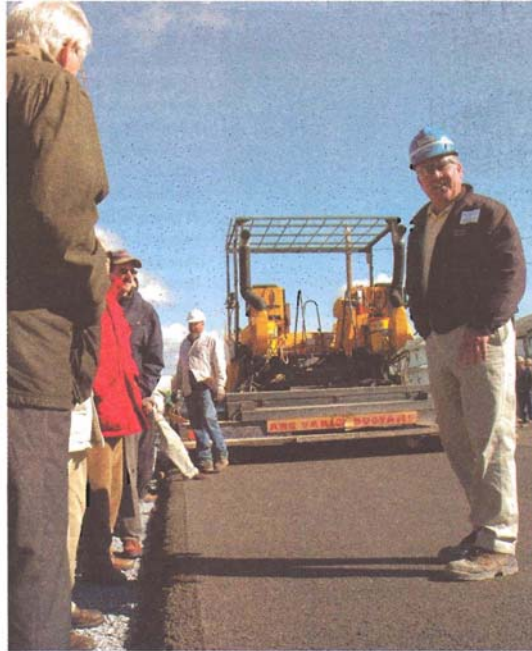
PERVIOUS CHOICE

Concrete variety better for earth, experts say

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REGION



PHOTOS/SUBMITTED

Milan Lipensky, right, of Pennsy Supply Inc. speaks at a pervious-concrete demonstration in October at Fort Indiantown Gap. Harrisburg-based Pennsy distributes the concrete, which is catching on with developers regionwide.

PERVIOUS CHOICE

Concrete variety better for earth, experts say

BY ERIC VERONIKIS
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Concrete and conservation are not normally a perfect fit. When concrete goes in, nature usually goes out.

But there is a new environmentally friendly concrete being introduced throughout Central Pennsylvania that pleases conservationists and developers. It's called pervious concrete, and it prevents stormwater-runoff damage and saves developers money and space when laying down parking lots and walkways.

As its name indicates, pervious concrete allows rainwater to seep through small embedded pores, permitting it to enter and soak into the ground.



WHAT IS IT?

Pervious concrete

This type of concrete allows rainwater to seep through small embedded pores, permitting it to enter and soak into the ground.

"It recharges the aquifer," said Milan Lipensky, quality-assurance manager for Harrisburg-based Pennsy Supply Inc., which

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PERVIOUS: Concrete's white color lowers surface temperature

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distributes pervious concrete. "It eliminates underground piping and, normally, retention ponds."

Retention ponds take up space that can be utilized by developers, and they attract mosquitoes and other bugs. And eliminating the installation of water-drainage pipes eliminates extra cost.

Its white color keeps surface temperatures down, reducing what Lipensky called the heat-island effect. Rather than absorbing heat and raising the surface temperature, pervious concrete reflects heat and light. Thanks to its reflective properties, parking lots made of pervious concrete require half the lighting of regular asphalt parking lots, Lipensky said. Pennsy Supply also offers bituminous pervious concrete that resembles black asphalt.

Porous concrete has been around for more than 20 years, but it is new to Central Pennsylvania. It was first used heavily in Florida and other southern states, before gaining popularity out West. In Pennsylvania, its first use was in a walkway laid outside the State College Welcome Center about seven years ago, said Ken Crank, director

of concrete for the Pennsylvania Aggregate and Concrete Association.

It may take some time to pick up steam throughout the region, but Crank believes pervious concrete will gain popularity locally and be used more often in the next few years. The Carlisle Regional Medical Center used pervious concrete in its surrounding parking lots and travel areas when the hospital was constructed about two years ago. And Fort Indiantown Gap features 15,000 square feet of pervious parking lots laid there in October. Indiantown Gap provided the location for pervious concrete demonstrations.

"We've done quite a bit of promotion, but it's like anything new. It takes a while to catch on. We are getting more and more interest," Crank said. "The challenge is not only making people aware of it and getting them to use it but also trying to train contractors to use it."

There is a special technique involved in laying down pervious concrete. Contractors should earn a pervious-concrete certification from the National Ready Mixed Association before they begin working with the product, Crank said.

Soon, contractors, architects,

engineers and others will be able to take pervious-concrete-certification classes through PACA, which is in Harrisburg.

Hanover-based Conewago Enterprises Inc.'s Ready Mix division is one of the few contractors throughout Central Pennsylvania already using pervious concrete.

Conewago has been working with the product for four years, but when classes become available, Conewago will earn its certification, Ready Mix plant manager Don Rummel said. It takes experience and knowledge to pour pervious concrete. Pouring pervious concrete is a totally different animal, Rummel said.

Conewago poured 2,000 yards of pervious concrete in a parking lot outside a warehouse in Lewisberry. The contractor used pervious concrete in a Starbucks parking lot in Hanover, and other projects are in the works.

"We promote it. We give them an option of blacktop or pervious concrete," Rummel said. "In another month, we are going to use it at a new shopping center on Eisenhower Drive (Hanover)."

It's durable and affordable too, Rummel said. Pervious concrete does not contain oil, which makes

it a little cheaper at the moment, Rummel said. Due to competition in the concrete market, Lipensky could not provide prices per cubic yard for concrete. He did say it's comparable to regular concrete, however.

So far, it's holding up well in areas Conewago placed pervious concrete four years ago — parking lots that see heavy truck traffic daily, Rummel said. At Indiantown Gap, however, after only several months, the concrete has shown some degradation.

About 1,500 square feet of the surface area began to degrade, said Keith Lloyd, architectural designer for the state Department of Military and Veterans Affairs. There are several factors that caused the surface of the pervious concrete to break down. The concrete was poured slower because it was laid out during a demonstration. The weather conditions were not optimal either that day.

"The truck was slowed down that day because it was a demonstration, and the material should have been put down more expediently. It's the type of material you don't have time to mess around with. You have to get it down, rolled and covered pretty quickly," Lloyd said.

It was also dry and windy at the time, Lloyd said, which helped dry out the material quickly in certain spots. The areas affected were only damaged on the surface, where some rock material came loose, Lloyd said.

Lloyd is still confident about pervious concrete but cannot get fully behind it until it proves itself further.

"We are going to let it go through the spring to see how it manages through the freeze-thaw. Then we will take a look at it and see how to handle it. It's kind of an experiment," Lloyd said. "I'm still for it. It's on DEP's list of best storm-management practices. We will use it for civilian parking lots but not for heavy military traffic yet. We want to see how it holds up."

Pervious concrete passes the test with conservationists, but only if the conditions for it are right and it is applied correctly. Essentially, pervious-concrete projects are water-filtration systems that have to be set up correctly to work properly, said Karl Kerchner, erosion and sediment-control specialist for the Lebanon County Conservation District.

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To design and build an efficient pervious-concrete parking lot, coarse aggregate stone material must be placed beneath the concrete. Below the crushed rock, a felt material called a geotextile, which distributes the weight of the rock, should be embedded, Kerchner said. Underneath the geotextile, at least two feet of penetrable soil should exist to allow the water to soak in and be filtered. An infiltration test also needs to be conducted. If clay-like soil exists there, the pervious-concrete system will not work, Kerchner said.

Pervious concrete should not be overloaded with water either. No more than three acres of drainage should pass over one acre of pervious concrete at any given time. If a pervious-concrete parking lot sits down slope from a traditional impervious concrete lot, too much stormwater-runoff can drain onto the pervious lot and overload the system and prevent it from working properly, Kerchner said.

“We love it. It can prevent a lot of runoff,” Kerchner said. “But there are a lot of right conditions. It is a stormwater-drainage system, and that must be stressed.” ■

Gene Suchma's view: Based on the article, "Pervious choice," page 3.

